REMARKS

Claims 1, 2, 7, 8, 12 and 13 are pending. By this Office Action, claims 1-6 are rejected under 35 U.S.C. §102; and claims 7-13 are rejected under 35 U.S.C. §103. By this Amendment, claims 3-6 and 9-11 are cancelled, and claims 1, 2, 7 and 8 are amended. No new matter is added. In view of the foregoing amendments and the following remarks, reconsideration and allowance are respectfully requested.

The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

I. Claim rejection under §102

The Office Action rejects, under 35 U.S.C. §102(b), claims 1-6 over GB 2318356, taken in view of evidence in U.S. Patent No. 5,556,931 to Imura et al. ("Imura") and U.S. Patent No. 5,800,907 to Yumoto et al. ("Yumoto"); rejects claims 1-6 over EP 465039 in view of evidence in Yumoto; and rejects claims 1-2 and 4-5 over U.S. Patent No. 4,264,483 to Laufer et al. ("Laufer"). Applicants respectfully traverse these rejections.

The cited primary references, GB 2318356, EP 465039 and Laufer, describe ink compositions that allegedly include monomer components. In contrast, Applicants claim ink compositions that include a resin liquid containing monomers. In original claims 1 and 2, Applicants defined the resin liquid in terms of viscosity. Accordingly, the Office Action relies on the teachings of Imura and Yumoto to support its contention that GB 2318356 and EP 465039 teach a resin composition having a viscosity that falls within the scope of the claimed resin composition. Amended claims 1 and 2 more clearly define the scope of Applicants' ink composition; specifically, the claimed ink is defined in terms of specific monomer compounds. Support for amended claims 1 and 2 can be found in the specification at least at pages 10-13, and the Example of Table 1. As detailed in the following remarks, none of the references cited in the Office Action disclose the claimed ink composition.

A. **Claims 1-6 over GB 2318356**

Claim 1 is drawn to an ink that includes a resin containing either a photoreactive monofunctional or a photoreactive bifunctional monomer. More specifically, the monofunctional monomer comprises "at least one acrylate selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, diethyleneglycol methacrylate," and the bifunctional monomer comprises "either nonanediol diacrylate or diethyleneglycol diacrylate or both." GB 2318356 fails to disclose such an ink.

The GB 2318356 reference describes an ink composition that includes polymerisable monomers. The reference teaches preferred monomers of acrylic ester derivatives containing a cyclo-aliphatic moiety, such as a five, six, seven or eight membered ring carrying one or more saturated or unsaturated alkyl substituents, and provides an extensive list of species examples (see, page 4, line 31 to page 5, line 16). The GB 2318356 reference also describes an extensive list of polyfunctional monomers for incorporation in the ink composition (see, page 5, lines 27-32).

Claim 1 is drawn to an ink composition including specific defined monofunctional and bifunctional monomers. Specifically, the claimed monofunctional monomers are selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, and diethyleneglycol methacrylate, and the bifunctional monomers are either nonanediol diacrylate or diethyleneglycol diacrylate or both. The GB 2318356 reference does not disclose an ink composition including the specific compounds as claimed in claim 1. Consequently, for at least this reason, GB 2318356 does not teach or suggest every feature of, and does not anticipate, claim 1.

Claim 2 also is drawn to an ink composition that includes specific defined monofunctional and bifunctional monomers, which are not disclosed in the cited references. Thus, for essentially the identical reasons as described in the above remarks, GB 2318356

also does not teach or suggest every feature of claim 2. Claims 3-6 are canceled, thus rendering moot their rejection.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-6.

B. Claims 1-6 over EP 465039

The EP 465039 reference describes an ink composition including monofunctional monomers such as vinyl compounds and (meth)acrylic esters, and di- and higher-functional monomers such as (meth)acrylic esters. The reference further provides a specific list of example compounds (see, page 2, line 57 to page 3, line 11; page 3 lines 28-43).

For the same reasons as detailed above, EP 465039 does not disclose an ink composition including the specific compounds as claimed in claims 1 and 2. Specifically, EP 465039 does not disclose monofunctional monomers selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, and diethyleneglycol methacrylate, and bifunctional monomers that are either nonanediol diacrylate or diethyleneglycol diacrylate or both, as claimed.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

C. Claims 1-2 and 4-5 over Laufer

Laufer describes an ink containing acrylic monomers (see, col. 2, lines 14-25). The Office Action specifically points to the alleged teaching of monomers butanediol dimethyacrylate and hydroxyethyl acrylate. But, Laufer does not disclose the claimed ink composition including the specific monomers recited in claims 1 and 2. Specifically, Laufer does not disclose monofunctional monomers selected from the claimed group consisting of hydroxybutyl acrylate, isobonyl methacrylate, and diethyleneglycol methacrylate, and bifunctional monomers that are either nonanediol diacrylate or diethyleneglycol diacrylate or both.

Laufer does not anticipate claims 1-2, and claims 4-5 are canceled. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

II. Claim rejection under §103

The Office Action rejects, under 35 U.S.C. §103(a), claims 7-13 over EP 465039 in view of U.S. Patent No. 5,446,082 to Asai et al. ("Asai") and Yumoto; rejects claims 7-13 over GB 2318356 in view of Asai, Imura and Yumoto; rejects claims 7-11 over EP 465039 in view of U.S. Patent No. 5,912,085 to Ito et al. ("Ito") and Yumoto; rejects claims 12-13 over EP 465039 in view of Ito, Yumoto and Asai; rejects claims 7-11 over GB 2318356 in view of Ito, Imura, and Yumoto; and, rejects claims 12-13 over GB 2318356 in view of Ito, Imura, Yumoto and Asai. Applicants respectfully traverse these rejections.

Claims 7-13 are drawn a printed product including an image made with the ink composition substantially as described in claims 1 and 2. In addition to the references cited above regarding the §102 rejection, the Office Action cites Asai and Ito to support its rejections of claims 7-13. Original claims 7 and 8 more clearly define the ink resin in terms of viscosity. Amended claims 7 and 8 redefine the scope of Applicants' ink composition; specifically, the claimed ink is defined in terms of specific monomer compounds. Support for amended claims 7 and 8 can be found in the specification at least at page 10-13 and the Examples of Table 1. As detailed in the following remarks, none of the references cited in the Office Action teach or suggest the claimed printed product.

A. Claims 7-13 over EP 465039, Asai and Yumoto

Claims 7 and 8 are drawn to a printed product including an ink-receiving layer containing a resin and an image on a surface of the ink-receiving layer made with ink containing at least a photoreactive monofunctional monomer and/or at least a photoreactive bifunctional monomer. More specifically, the claims recite that the monofunctional monomer comprises at least one acrylate selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, diethyleneglycol methacrylate, and the bifunctional

monomer comprises either nonanediol diacrylate or diethyleneglycol diacrylate or both. None of the cited references, EP 465039, Asai and Yumoto, either alone or in any combination, teach or suggest such a printed product.

EP 465039 describes a printed product formed with an ink composition that includes mono- and difunctional monomers, but as detailed above, this reference does not teach or suggest the claimed monomers. The monomers recited in claims 7 and 8 are hydroxybutyl acrylate, isobonyl methacrylate, diethyleneglycol methacrylate, nonanediol diacrylate and diethyleneglycol diacrylate. None of these claimed monomers are taught or suggested by EP 465039. Moreover, Asai and Yumoto do not make up for the deficiencies of EP 465039.

Asai describes an ink jet recording medium including image and ink receiving layers comprising polyester resin and allegedly useful to obtain high quality images. Yumoto describes lens resin compositions. Neither Asai nor Yumoto teach or suggest the specific defined monomers in an ink composition as claimed. Thus, the combination of EP 465039, Asai and Yumoto would not have rendered obvious, to one of ordinary skill in the art, the product of claims 7 and 8, and claims 12 and 13 dependant thereon. Claims 9-11 have been canceled.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

B. Claims 7-13 over GB 2318356, Asai, Imura and Yumoto

GB 2318356 describes a printed product including an image formed on a substrate, wherein the image is made with ink including monofunctional and difunctional monomer, alone or in combination. However, as detailed above, GB 2318356 does not teach or suggest an ink that includes the monofunctional and difunctional monomers of claims 7 and 8. Further, neither of Asai, Imura and Yumoto complete the deficiencies of GB 2318356.

The remarks in the foregoing paragraphs concerning Asai and Yumoto also apply in this rejection. Regarding Imura, this reference describes polymer compositions suitable for

ophthalmic lenses, and fails to teach or suggest the claimed monomers. Thus, for at least this reason, the combination of GB 2318356, Asai, Imura and Yumoto would not have rendered obvious, to one of ordinary skill in the art, the product of claims 7 and 8, and claims 12 and 13 dependant thereon.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

C. Claims 7-11 over EP 465039, Ito and Yumoto and Claims 12-13 over EP 465039, Ito, Yumoto and Asai

The remarks in the foregoing paragraphs concerning EP 465039, Yumoto and Asai also apply in these rejections. Ito describes an ink jet recording material comprising an ink receiving layer allegedly superior in waterfastness and high surface gloss. However, Ito does not make up for the deficiencies of EP 465039 or Yumoto. Ito, like all of the other references cited in this Office Action, fails to teach or suggest the claimed monomers.

For at least this reason, the combination of EP 465039, Ito and Yumoto would not have rendered obvious, to one of ordinary skill in the art, the product of claims 7 and 8. Claims 9-11 have been canceled.

As stated in the above remarks, Asai fails to make up for any of the deficiencies of EP 465039, Ito and Yumoto. Thus, the combination of EP 465039, Ito, Yumoto and Asai would not have rendered obvious the product of claims 12 and 13. Accordingly, Applicants respectfully request reconsideration and withdrawal of these rejections.

D. Claims 7-11 over GB 2318356, Ito, Imura and Yumoto and Claims 12-13 over GB 2318356, Ito, Imura, Yumoto and Asai

The remarks in the foregoing paragraphs concerning the cited references also apply in these rejections. Namely, none of the references cited in this rejection teach or suggest the claimed monomers. Thus, the cited references, either alone or in combination would not have rendered obvious the printed product of claims 7, 8, 12 and 13. Accordingly, Applicants respectfully request reconsideration and withdrawal of these rejections.

III. Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the Applicants' representative at the telephone number listed below.

Respectfully submitted,

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Attachments:
Appendix
Petition for Extension of Time

JAO:HJV/hjv

Date: December 27, 2002

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461

APPENDIX

Changes to Claims:

Claims 3-6 and 9-11 are canceled.

The following is a marked-up version of the amended claims:

1. (Twice Amended) An ink comprising:

at least a colorant; and

a resin liquid containing either at least ~~one~~ a photoreactive monofunctional monomer or at least ~~one~~ a photoreactive bifunctional monomer,

~~wherein a viscosity of the resin liquid at 25 °C is 1.0 mPa · s or more but 10.5 mPa · s or less~~

wherein said monofunctional monomer comprises at least one acrylate selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, diethyleneglycol methacrylate, and said bifunctional monomer comprises either nonanediol diacrylate or diethyleneglycol diacrylate or both.

2. (Amended) An ink comprising:

at least a colorant; and

a resin liquid containing at least a photoreactive monofunctional monomer and at least a photoreactive bifunctional monomer,

~~wherein an average viscosity A of the resin liquid at 25°C calculated using the formula: $A = (W_1 \times A_1 + W_2 \times A_2)/(W_1 + W_2)$ where A_1 is a viscosity of the photoreactive monofunctional monomer at 25°C, A_2 is a viscosity of the photoreactive bifunctional monomer at 25°C, W_1 is a weight of the photoreactive monofunctional monomer, and W_2 is a weight of the photoreactive bifunctional monomer, is 1.0 mPa · s or more but 10.5 mPa · s or less~~

wherein said monofunctional monomer comprises at least one acrylate selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, diethyleneglycol methacrylate, and said bifunctional monomer comprises either nonanediol diacrylate or diethyleneglycol diacrylate or both.

7. (Twice Amended) A printed product comprising: an ink-receiving layer containing as a main component at least one resin selected from ~~a~~the group consisting of polyester resin, styrene-acrylic resin, epoxy resin, and phenoxy resin, and being formed an image on a surface of the ink-receiving layer,

wherein the image is made with an ink comprising at least a colorant, and a resin liquid containing at least ~~one~~ a photoreactive monofunctional monomer or at least ~~one~~ a photoreactive bifunctional monomer,

~~wherein a viscosity of the resin liquid at 25 °C is 1.0 mPa · s or more but 10.5 mPa · s or less~~

wherein said monofunctional monomer comprises at least one acrylate selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, diethyleneglycol methacrylate, and said bifunctional monomer comprises either nonanediol diacrylate or diethyleneglycol diacrylate or both.

8. (Amended) A printed product comprising:

an ink-receiving layer containing as a main component at least one resin selected from ~~a~~the group consisting of polyester resin, styrene-acrylic resin, epoxy resin, and phenoxy resin, and being formed an image on a surface of the ink-receiving layer,

wherein the image is made with an ink comprising at least a colorant, and a resin liquid containing at least a photoreactive monofunctional monomer and at least a photoreactive bifunctional monomer,~~wherein an average viscosity A of the resin liquid at 25°C calculated using the formula: $A = (W_1 \times A_1 + W_2 \times A_2)/(W_1 + W_2)$ where A_1 is a~~

~~viscosity of the photoreactive monofunctional monomer at 25°C, A_2 is a viscosity of the photoreactive bifunctional monomer at 25°C, W_1 is a weight of the photoreactive monofunctional monomer, and W_2 is a weight of the photoreactive bifunctional monomer, is 1.0 mPa · s or more but 10.5 mPa · s or less~~

wherein said monofunctional monomer comprises at least one acrylate selected from the group consisting of hydroxybutyl acrylate, isobonyl methacrylate, diethyleneglycol methacrylate, and said bifunctional monomer comprises either nonanediol diacrylate or diethyleneglycol diacrylate or both.